

MetaDACUM: GIS Technician
MetaDuty and MetaTask Source Data

All Items are referenced in the GTCM Assessment Tool

MetaDuty / MetaTask / Actual Task	DACUM Panels		VALIDATION SURVEY							
			Importance: 1 low - 3 high				Learning Difficulty: 1 low - 3 high			
	Name	Size	Mean	Median	Mode	Responses	Mean	Median	Mode	Responses
A MANAGE DATA										
A1 Define data requirements (format, projections, etc.)										
Determine data to be obtained	AGK	5								
Determine appropriate projections	GHC	12								
Determine coverages to be managed	GHC	12								
Determine data needs / format	GHC	12								
Determine future uses for completed project data / processes	GHC	12								
Define data requirements (e.g. domains)	GSC	12	2.09	2.0	2.0	174	2.10	2.0	2.0	158
Define data requirements (C)	SDM	11	2.54	3.0	3.0	39	2.44	2.0	2.0	36
Determine resource needs	TST	8								
Determine future uses for completed projects/databases	TST	8								
9 tasks	5 panels	48 members	2.17	2.0	2.0	213	2.16	2.0	2.0	194
A2 Perform spatial and non-spatial data joins and link, join and relate tables										
Join tables (e.g. link, join, relate)	GSC	12	2.54	3.0	3.0	177	1.62	2.0	2.0	162
Perform spatial join	GSC	12	2.51	3.0	3.0	175	1.71	2.0	2.0	161
Join non-spatial data	LLC	12	2.32	2.0	2.0	84	1.62	2.0	2.0	74
3 tasks	2 panels	24 members	2.49	3.0	3.0	436	1.66	2.0	2.0	397
A3 Define feature behaviors and relationships										
Define feature relationships/behaviors (relate tables, relationship classes)	SDM	11	2.63	3.0	3.0	41	2.67	3.0	3.0	39
Define feature behaviors (e.g. sub-types & domains) (C)	SDM	11	2.25	2.0	2.0	36	2.65	3.0	3.0	34
2 tasks	1 panels	11 members	2.45	3.0	3.0	77	2.66	3.0	3.0	73
A4 Create and build topology										
Create topology for related features (64%) (Adv.)	LLC	12	2.11	2.0	2.0	85	2.32	2.0	2.0	71
Build topology.	SMT	11								
2 tasks	2 panels	23 members	2.11	2.0	2.0	85	2.32	2.0	2.0	71
A5 Develop data maintenance schedule										
Develop a data maintenance schedule	GHC	12								
Develop data maintenance schedules	SDM	11	2.33	3.0	3.0	30	2.32	2.0	2.0	28
Conform to data maintenance schedule	TST	8								
3 tasks	3 panels	31 members	2.33	3.0	3.0	30	2.32	2.0	2.0	28
A6 Establish data custodianships and permissions										
Establish the data custodianships	GHC	12								
Assign data/database permissions	SDM	11	2.27	2.0	3.0	22	2.23	2.0	2.0	22
Establish data custodianship (C)	SDM	11	2.32	2.0	3.0	25	2.26	2.0	2.0	23
3 tasks	2 panels	23 members	2.30	2.0	3.0	47	2.25	2.0	2.0	45

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MetaDuty / MetaTask / Actual Task				DACUM Panels		VALIDATION SURVEY							
						Importance: 1 low - 3 high				Learning Difficulty: 1 low - 3 high			
				Name	Size	Mean	Median	Mode	Responses	Mean	Median	Mode	Responses
A7	Evaluate spatial data accuracy (quality, compatibility & appropriateness for applicati												
	Choose data for analysis			AGK	5								
	Verify accuracy of imported data			GHC	12								
	Verify content and spatial accuracies			GHC	12								
	Evaluate spatial data accuracy			GSC	12	2.49	3.0	3.0	177	2.11	2.0	2.0	157
	Determine data compatibility (e.g. projections) (E,C)			SDM	11	2.73	3.0	3.0	48	2.47	2.0	2.0	47
	QA/QC data (E,C) (Create/Acquire GIS Data)			SDM	11	2.87	3.0	3.0	47	2.52	3.0	3.0	48
	Evaluate data in context of application.			SMT	11								
	Evaluate data quality.			SMT	11								
	Handle data types appropriately			TST	8								
	9 tasks	6 panels	59 members			2.60	3.0	3.0	272	2.26	2.0	2.0	252
A8	Research and evaluate data sources												
	Evaluate sources			GHC	12								
	Research Data Sources			GRC	5								
	Identify data sources/resources			GSC	12	2.50	3.0	3.0	177	1.88	2.0	2.0	161
	Research existing geospatial data			LLC	12	2.31	2.0	2.0	87	1.70	2.0	2.0	79
	Research available data (C)			SDM	11	2.67	3.0	3.0	54	2.02	2.0	2.0	53
	Evaluate data sources			TST	8								
	6 tasks	6 panels	60 members			2.48	3.0	3.0	318	1.86	2.0	2.0	293
B GENERATE DATA													
B1	COGO legal descriptions (digitize using COGO e.g. meets & bounds)												
	Digitize data using COGO (e.g. metes & bounds)			GSC	12	2.31	2.0	3.0	164	2.01	2.0	2.0	141
	COGO (55%)			LLC	12	2.05	2.0	2.0	63	2.24	2.0	2.0	58
	COGO legal descriptions (E)			SDM	11	1.96	2.0	1.0	27	2.18	2.0	2.0	28
	3 tasks	3 panels	35 members			2.21	2.0	3.0	254	2.09	2.0	2.0	227
B2	Collect field data electronically												
	Electronically collect field spatial data (GPS, Traffic counters, total station, yield monitors)			LLC	12	2.41	3.0	3.0	85	1.85	2.0	2.0	71
	Capture spatial and non-spatial data			TST	8								
	2 tasks	2 panels	20 members			2.41	3.0	3.0	85	1.85	2.0	2.0	71
B3	Collect field data using GPS (location and attribute)												
	Collect field attribute data (E,C)			SDM	11	2.54	3.0	3.0	39	2.00	2.0	2.0	40
	Collect field location data via GPS (E,C)			SDM	11	2.50	3.0	3.0	38	2.15	2.0	2.0	33
	Capture spatial & attribute data			GHC	12								
	Perform Data Entry (e.g. college GPSdata, collect field data)			GRC	5								
	Collect data using GPS			GSC	12	2.49	3.0	3.0	174	1.66	2.0	2.0	160
	5 tasks	4 panels	40 members			2.50	3.0	3.0	251	1.79	2.0	2.0	233

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MetaDuty / MetaTask / Actual Task				Validation Survey									
				DACUM Panels		Importance: 1 low - 3 high				Learning Difficulty: 1 low - 3 high			
				Name	Size	Mean	Median	Mode	Responses	Mean	Median	Mode	Responses
B4	Coordinate geodetic control prior to mapping												
	Coordinate geodedic control prior to mapping			GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	Participate in geodetic control			TST	8								
	2 tasks			2 panels	20 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
B5	Post process GPS Data												
	Post process GPS data (e.g. differential correction)			GSC	12	2.46	3.0	3.0	173	2.01	2.0	2.0	155
	Post-process electronically collected field data (73%) (Adv.)			LLC	12	2.25	2.0	2.0	85	1.96	2.0	2.0	75
	2 tasks			2 panels	24 members	2.39	3.0	3.0	258	1.99	2.0	2.0	230
B6	Assess current technologies used in data collection.												
	Assess current technologies used in data collection.			SMT	11	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	1 tasks			1 panels	11 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
B7	Collect field data manually												
	Collect data using field sheets			GSC	12	2.31	2.0	2.0	169	1.47	1.0	1.0	148
	Manually collect attribute data in the field (82%)			LLC	12	2.27	2.0	3.0	89	1.61	2.0	2.0	74
	Administer questionnaires (27%)			LLC	12	1.35	1.0	1.0	77	1.47	1.0	1.0	62
	3 tasks			2 panels	24 members	2.08	2.0	2.0	335	1.51	1.0	1.0	284
B8	Digitize data (tablet or heads up)												
	Perform Data Entry (e.g. digitize geographic features, create Auto-Cad)			GRC	5								
	"Heads-up" digitize data			GSC	12	2.46	3.0	3.0	169	1.56	1.0	1.0	154
	Digitize feature geometry			LLC	12	2.52	3.0	3.0	88	1.62	2.0	2.0	78
	Perform tablet digitization (E,C)			SDM	11	1.93	2.0	2.0	30	1.92	2.0	2.0	26
	Perform “heads-up” (on-screen) digitization (E,C)			SDM	11	2.64	3.0	3.0	44	2.02	2.0	2.0	43
	5 tasks			4 panels	40 members	2.45	3.0	3.0	331	1.67	1.0	1.0	301
B9	Geocode data												
	Perform Geo-coding			GRC	5								
	Geocode addresses			GSC	12	2.48	3.0	3.0	176	1.84	2.0	2.0	160
	Geocode (Adv)			LLC	12	2.27	2.0	2.0	83	1.92	2.0	2.0	71
	Reverse geocode (82%) (Adv)			LLC	12	1.91	2.0	2.0	78	2.10	2.0	2.0	61
	Geocode data (E, C)			SDM	11	2.44	3.0	3.0	43	2.22	2.0	2.0	41
5 tasks			4 panels	40 members	2.31	3.0	3.0	380	1.95	2.0	2.0	333	
B10	Scan non-digital data												
	Scan hard copy maps			GSC	12	2.22	2.0	2.0	175	1.26	1.0	1.0	160
	Scan non-digital data (91%)			LLC	12	2.07	2.0	2.0	87	1.36	1.0	1.0	75
	Scan hard copy images (E, C)			SDM	11	2.05	2.0	2.0	43	1.69	2.0	2.0	42

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	Name	Size	Mean	Median	Mode	Responses	Mean	Median	Mode	Responses
3 tasks	3 panels	35 members	2.15	2.0	2.0	305	1.35	1.0	1.0	277
C PROCESS DATA										
C1 Acquire data										
Obtain agronomic data (e.g. soil test, yield)	AGK	5								
Obtain area of interest boundary data	AGK	5								
Obtain climate data (e.g. precipitation, wind, temperature)	AGK	5								
Obtain land use data	AGK	5								
Gather data for updates	GHC	12								
Contact data originator for acquisition	GHC	12								
Acquire Data	GRC	5								
Acquire existing data (e.g. digital, hard copy)	GSC	12	2.61	3.0	3.0	177	1.72	2.0	2.0	161
Acquire existing geospatial data	LLC	12	2.43	2.0	3.0	89	1.64	2.0	2.0	78
Purchase new data	SDM	11	1.96	2.0	2.0	28	1.89	2.0	2.0	27
Acquire data from originator	TST	8								
Gather data for updates	TST	8								
12 tasks	7 panels	77 members	2.49	3.0	3.0	294	1.71	2.0	2.0	266
C2 Assist in Determining data needs and format										
Assist in determining data needs/format	TST	8	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
1 tasks	1 panels	8 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
C3 Obtain imagery, basemap and terrain feature data										
Obtain base map data (e.g. roads, streams, political boundaries, cities)	AGK	5	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
Obtain imagery data (e.g. satellite, aerial)	AGK	5								
Obtain terrain feature data (e.g. soil type, topography)	AGK	5								
3 tasks	1 panels	5 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
C4 Define data collection methods (e.g. GPS, air photo)										
Define data collection methods (e.g. GPS, air photo)	GSC	12	2.24	2.0	2.0	177	1.91	2.0	2.0	160
1 tasks	1 panels	12 members	2.24	2.0	2.0	177	1.91	2.0	2.0	160
C5 Adhere to policies for sharing and receiving data										
Adhere to P&P for sharing and receiving data	TST	8	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
Adhere to policies for sharing and receiving data	GHC	12								
2 tasks	2 panels	20 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
C6 Organize file structure (e.g. create directories, perform data & directory housekeeping)										
Categorize data	LLC	12	2.16	2.0	2.0	83	1.61	2.0	2.0	71
Establish file structure (Adv.)	LLC	12	2.04	2.0	2.0	85	1.89	2.0	2.0	73
Organize files according to Company procedures	LLC	12	2.27	2.0	2.0	88	1.56	2.0	1.0	71
Organize file structure (e.g. create directories, perform data & directory housekeeping (C)	SDM	11	2.69	3.0	3.0	48	2.10	2.0	2.0	49

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				Importance: 1 low - 3 high				Learning Difficulty: 1 low - 3 high			
		Name	Size	Mean	Median	Mode	Responses	Mean	Median	Mode	Responses
	Organize files.	SMT	11								
	Perform file management	TST	8								
	6 tasks	4 panels	42 members	2.24	2.0	2.0	304	1.76	2.0	2.0	264
C7	Create directory structure										
	Create directory structure	AGK	5	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	1 tasks	1 panels	5 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
C8	Create naming conventions										
	Create naming conventions	AGK	5	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	1 tasks	1 panels	5 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
C9	Normalize data structure (e.g. schema)										
	Normalize data structure (e.g. schema)	GSC	12	2.04	2.0	2.0	171	2.21	2.0	2.0	149
	1 tasks	1 panels	12 members	2.04	2.0	2.0	171	2.21	2.0	2.0	149
C10	Organize digital and non-digital data (e.g. data library)										
	Organize digital data (e.g. data library)	GSC	12	2.36	2.0	2.0	174	1.78	2.0	2.0	160
	1 tasks	1 panels	12 members	2.36	2.0	2.0	174	1.78	2.0	2.0	160
C11	Organize written information (i.e., reports, resumes).										
	Organize written information (i.e., reports, resumes).	SMT	11	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	1 tasks	1 panels	11 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
C12	Ensure Quality Assurance / Quality Control for acquiring and maintain data										
	Ensure Data Quality (Quality Control, Quality Assurance)	GRC	5								
	Quality Assurance / Quality Control (Adv.) (Maintain data)	LLC	12	2.43	3.0	3.0	89	2.20	2.0	2.0	75
	QA/QC data (E,C) (Maintain GIS Data)	SDM	11	2.83	3.0	3.0	53	2.39	2.0	2.0	49
	3 tasks	3 panels	28 members	2.58	3.0	3.0	142	2.28	2.0	2.0	124
C13	Validate spatial and tabular data (e.g. topology, build, verification)										
	Validate spatial data (e.g. topology, build, verification)	GSC	12	2.45	3.0	3.0	172	1.97	2.0	2.0	155
	Validate tabular data	GSC	12	2.47	3.0	3.0	173	1.84	2.0	2.0	154
	Validate data changes (multi-editor environ.) (91%) (Adv.)	LLC	12	2.01	2.0	2.0	84	2.25	2.0	2.0	69
	Finalize data sets	AGK	5								
	Validate agronomic data	AGK	5								
	Validate boundary data	AGK	5								
	Determine data consistencies	GHC	12								
	Verify that updates are error free	GHC	12								
	8 tasks	4 panels	41 members	2.37	3.0	3.0	429	1.97	2.0	2.0	378

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			DACUM Panels		Importance: 1 low - 3 high				Learning Difficulty: 1 low - 3 high			
			Name	Size	Mean	Median	Mode	Responses	Mean	Median	Mode	Responses
	Match location points with attributes	AGK	5									
	Perform spatial and content updates	GHC	12									
	Edit attribute data	GSC	12	2.78	3.0	3.0	176	1.41	1.0	1.0	161	
	Edit spatial data	GSC	12	2.76	3.0	3.0	174	1.58	2.0	1.0	160	
	Create features	LLC	12	2.74	3.0	3.0	87	1.53	1.0	1.0	80	
	Enter data base information	LLC	12	2.58	3.0	3.0	88	1.33	1.0	1.0	79	
	Edit GIS data(e.g. add, delete, update) (E,C)	SDM	11	2.91	3.0	3.0	54	2.27	2.0	2.0	51	
	Populate GIS feature attributes (E,C)	SDM	11	2.71	3.0	3.0	55	2.02	2.0	2.0	48	
	Refresh/ replace layers (e.g. imagery, thematic layers) (C)	SDM	11	2.49	2.0	2.0	49	2.10	2.0	2.0	48	
	Perform spatial and content updates	TST	8									
	10 tasks	6 panels	60 members	2.73	3.0	3.0	683	1.63	1.0	1.0	627	
C21	Create/update data											
	Create subset data	TST	8	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
	Update Existing Data	GRC	5									
	2 tasks	2 panels	13 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
C22	Update spatial and non-spatial data attributes											
	Update non-spatial data attributes	LLC	12	2.50	3.0	3.0	82	1.45	1.0	1.0	78	
	Update spatial data attributes	LLC	12	2.59	3.0	3.0	86	1.43	1.0	1.0	77	
	2 tasks	1 panels	12 members	2.55	3.0	3.0	168	1.44	1.0	1.0	155	
C23	Edit feature geometry											
	Edit feature geometry	LLC	12	2.64	3.0	3.0	87	1.81	2.0	2.0	77	
	1 tasks	1 panels	12 members	2.64	3.0	3.0	87	1.81	2.0	2.0	77	
C24	Post / reconcile edits (e.g. changes)											
	Post / reconcile edits (e.g. changes)	GSC	12	2.47	3.0	3.0	174	1.72	2.0	2.0	159	
	1 tasks	1 panels	12 members	2.47	3.0	3.0	174	1.72	2.0	2.0	159	
C25	Create/update metadata											
	Create metadata	GHC	12									
	Document spatial and content changes	GHC	12									
	Create and Update Meta Data	GRC	5									
	Create / update metadata	GSC	12	2.44	3.0	3.0	176	1.69	2.0	2.0	160	
	Create metadata	LLC	12	2.22	2.0	2.0	85	1.85	2.0	2.0	71	
	Update Metadata	LLC	12	2.11	2.0	2.0	85	1.68	2.0	2.0	72	
	Publish metadata	LLC	12	1.85	2.0	2.0	82	1.73	2.0	2.0	66	
	Create metadata (E,C)	SDM	11	2.59	3.0	3.0	44	2.09	2.0	2.0	44	
	Update metadata (E,C)	SDM	11	2.50	3.0	3.0	38	1.89	2.0	2.0	35	
	Create and maintain metadata	TST	8									

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				Name	Size	Mean	Median	Mode	Responses	Mean	Median	Mode	Responses
	Initiate metadata process	TST	8										
	11 tasks	6 panels	60 members	2.27	3.0	3.0	510	1.77	2.0	2.0	448		
C26	Define /change data’s spatial reference												
	Change data’s spatial reference	GSC	12	2.55	3.0	3.0	175	1.83	2.0	2.0	161		
	Define data’s spatial reference	GSC	12	2.61	3.0	3.0	176	1.83	2.0	2.0	158		
	2 tasks	1 panels	12 members	2.58	3.0	3.0	351	1.83	2.0	2.0	319		
C27	Georeference data												
	Georeference digital imagery (C)	SDM	11	2.29	2.0	2.0	42	2.59	3.0	3.0	41		
	Georeference data	TST	8										
	Georeference imagery	GHC	12										
	Georeference data	GSC	12	2.54	3.0	3.0	177	1.88	2.0	2.0	161		
	4 tasks	4 panels	43 members	2.49	3.0	3.0	219	2.02	2.0	2.0	202		
C28	Transform spatial data (e.g. reprojections)												
	Transform spatial data (e.g. reprojections)	LLC	12	2.29	2.0	2.0	84	2.03	2.0	2.0	75		
	1 tasks	1 panels	12 members	2.29	2.0	2.0	84	2.03	2.0	2.0	75		
C29	Rectify raster data (e.g. rubbersheeting)												
	Rectify raster data (e.g. rubbersheeting)	LLC	12	2.20	2.0	2.0	80	2.09	2.0	2.0	69		
	Rectify images (C)	SDM	11	2.36	3.0	3.0	39	2.66	3.0	3.0	38		
	2 tasks	2 panels	23 members	2.25	2.0	2.0	119	2.29	2.0	2.0	107		
C30	Apply appropriate projections												
	Apply appropriate projections	TST	8	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1		
	1 tasks	1 panels	8 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1		
C31	Convert digital formats - data abstraction (cut, simplify, stretch & fit)												
	Conversion of digital formats - data abstraction (cut, simplify, stretch & fit)	GHC	12										
	Perform data conversions	GSC	12	2.48	3.0	3.0	176	1.99	2.0	2.0	161		
	2 tasks	2 panels	24 members	2.48	3.0	3.0	176	1.99	2.0	2.0	161		
C32	Convert data between formats (e.g. KML, XML, RSS) (Adv.)												
	Convert raw data into format of choice	AGK	5										
	Convert Data Source (e.g. Auto-CAD)	GRC	5										
	Convert data between formats (e.g. KML, XML, RSS) (Adv.)	LLC	12	1.93	2.0	2.0	80	1.95	2.0	2.0	63		
	Perform data conversions (between formats) (E, C)	SDM	11	2.72	3.0	3.0	53	2.31	2.0	2.0	48		
	Convert between data formats (C)	SDM	11	2.57	3.0	3.0	47	2.31	2.0	2.0	45		
	Perform data conversions (between formats) (E, C)	SDM	11	2.72	3.0	3.0	53	2.31	2.0	2.0	48		
	Convert data into consistent formats	TST	8										

MetaDACUM: GIS Technician
MetaDuty and MetaTask Source Data

All Items are referenced in the GTCM Assessment Tool

MetaDuty / MetaTask / Actual Task			VALIDATION SURVEY									
			DACUM Panels		Importance: 1 low - 3 high				Learning Difficulty: 1 low - 3 high			
			Name	Size	Mean	Median	Mode	Responses	Mean	Median	Mode	Responses
Convert data into consistent formats			TST	8								
8 tasks			5 panels	41 members	2.42	3.0	3.0	233	2.20	2.0	2.0	204
D ANALYZE DATA												
D1	Conduct Geoprocessing (e.g. clip, buffering, overlay, run models, map algebra)											
	Calculate defined yield		AGK	5	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	Combine data layers		AGK	5								
	Compare data layers		AGK	5								
	Create recommendation equations		AGK	5								
	Interpolate defined yield		AGK	5								
	Interpolate point data		AGK	5								
	Perform vector/raster overlay analysis		GHC	12								
	Automate Manual Processes (e.g. scripting, modal building)		GRC	5								
	Identify service area		GSC	12	2.09	2.0	2.0	175	1.88	2.0	2.0	155
	Geoprocess data (e.g. clip, buffer, union)		LLC	12	2.52	3.0	3.0	87	1.74	2.0	2.0	77
	Conduct Geoprocessing (e.g. clip, buffering, overlay, run models) (C)		SDM	11	2.81	3.0	3.0	52	2.35	2.0	2.0	51
	QA/QC Data (C) (Spatial/Non-Spatial Analysis)		SDM	11	2.80	3.0	3.0	44	2.42	2.0	2.0	43
	Assess output to determine if output is good.		SMT	11								
13 tasks			7 panels	68 members	2.39	3.0	3.0	357	2.00	2.0	2.0	325
D2	Observe and report data anomalies											
	Observe data anomalies		AGK	5	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	Report data anomalies		AGK	5								
2 tasks			1 panels	5 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
D3	Perform buffer analysis											
	Perform buffer analysis		GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
1 tasks			1 panels	12 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
D4	Conduct slope analysis											
	Conduct slope analysis		GSC	12	1.80	2.0	2.0	168	2.21	2.0	2.0	145
1 tasks			1 panels	12 members	1.80	2.0	2.0	168	2.21	2.0	2.0	145
D5	Derive new data (e.g. generate contours from DEM, data generalization)											
	Derive new data (e.g. generate contours from DEM, data generalization)		GSC	12	2.20	2.0	2.0	170	2.24	2.0	2.0	155
1 tasks			1 panels	12 members	2.20	2.0	2.0	170	2.24	2.0	2.0	155
D6	Perform overlay analysis.											
	Perform overlay analysis.		SMT	11	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
1 tasks			1 panels	11 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1

MetaDACUM: GIS Technician
MetaDuty and MetaTask Source Data

All Items are referenced in the GTCM Assessment Tool

MetaDuty / MetaTask / Actual Task			VALIDATION SURVEY									
			DACUM Panels		Importance: 1 low - 3 high				Learning Difficulty: 1 low - 3 high			
			Name	Size	Mean	Median	Mode	Responses	Mean	Median	Mode	Responses
D7	Perform proximity analysis											
	Perform proximity analysis		GSC	12	2.05	2.0	2.0	171	1.97	2.0	2.0	153
	1 tasks		1 panels	12 members	2.05	2.0	2.0	171	1.97	2.0	2.0	153
D8	Perform site selection											
	Perform site selection		GSC	12	1.91	2.0	2.0	172	2.10	2.0	2.0	150
	1 tasks		1 panels	12 members	1.91	2.0	2.0	172	2.10	2.0	2.0	150
D9	Perform view shed analysis											
	Perform view shed analysis		GSC	12	1.79	2.0	2.0	157	2.31	2.0	2.0	127
	1 tasks		1 panels	12 members	1.79	2.0	2.0	157	2.31	2.0	2.0	127
D10	Create Models (e.g. process & scientific models, flow charts)											
	Create Models (e.g. process & scientific models, flow charts) (C)		SDM	11	2.21	2.0	2.0	29	2.85	3.0	3.0	27
	1 tasks		1 panels	11 members	2.21	2.0	2.0	29	2.85	3.0	3.0	27
D11	Interpret Results											
	Interpret Results (C)		SDM	11	2.69	3.0	3.0	39	2.76	3.0	3.0	38
	1 tasks		1 panels	11 members	2.69	3.0	3.0	39	2.76	3.0	3.0	38
D12	Pre-process Data (e.g. generalize, subset)											
	Pre-process Data (e.g. generalize, subset) (C)		SDM	11	2.41	2.0	2.0	34	2.29	2.0	2.0	35
	1 tasks		1 panels	11 members	2.41	2.0	2.0	34	2.29	2.0	2.0	35
D13	Interpret topography (i.e., contour lines).											
	Interpret topography (i.e., contour lines).		SMT	11	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	1 tasks		1 panels	11 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
D14	Perform queries											
	Perform spatial database queries		GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	Create Database Queries		GRC	5								
	Respond to Geographic Queries		GRC	5								
	Run Database Queries and Calculations		GRC	5								
	Perform data queries.		SMT	11								
	Perform basic spatial queries		TST	8								
	6 tasks		4 panels	36 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
D15	Identify least-cost path											
	Identify least-cost path		GSC	12	1.78	2.0	1.0	172	2.18	2.0	2.0	148
	1 tasks		1 panels	12 members	1.78	2.0	1.0	172	2.18	2.0	2.0	148

MetaDACUM: GIS Technician
MetaDuty and MetaTask Source Data

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MetaDuty / MetaTask / Actual Task			VALIDATION SURVEY									
			DACUM Panels		Importance: 1 low - 3 high				Learning Difficulty: 1 low - 3 high			
			Name	Size	Mean	Median	Mode	Responses	Mean	Median	Mode	Responses
D16	Perform network analysis (dynamic segmentation)											
	Perform network analysis (dynamic segmentation)		GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	1 tasks		1 panels	12 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
D17	Identify shortest route											
	Identify shortest route		GSC	12	2.06	2.0	2.0	175	1.90	2.0	2.0	154
	1 tasks		1 panels	12 members	2.06	2.0	2.0	175	1.90	2.0	2.0	154
D18	Perform dynamic segmentation											
	Perform dynamic segmentation (18%) (Adv.)		LLC	12	1.73	2.0	1.0	66	2.31	2.0	2.0	51
	1 tasks		1 panels	12 members	1.73	2.0	1.0	66	2.31	2.0	2.0	51
D19	Model linear networks											
	Model linear networks		GSC	12	1.72	2.0	2.0	163	2.48	3.0	3.0	142
	1 tasks		1 panels	12 members	1.72	2.0	2.0	163	2.48	3.0	3.0	142
D20	Conduct image analysis (e.g. classification)											
	Perform image analysis (e.g. classification) (C)		SDM	11	1.90	2.0	1.0	29	2.68	3.0	3.0	28
	1 tasks		1 panels	11 members	1.90	2.0	1.0	29	2.68	3.0	3.0	28
D21	Classify remote sensing data											
	Classify remote sensing data		GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	1 tasks		1 panels	12 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
D22	Develop orthophotography											
	Develop orthophotography		GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	1 tasks		1 panels	12 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
D23	Interpret Imagery											
	Interpret Imagery		GRC	5	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	1 tasks		1 panels	5 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
D24	Conduct geostatistical analysis											
	Analyze data statistically		AGK	5								
	Generate statistical reports		GSC	12	1.97	2.0	2.0	175	2.10	2.0	2.0	155
	Generate statistics (e.g. descriptive, spatial) (C)		SDM	11	2.42	2.0	2.0	43	2.59	3.0	3.0	41
	3 tasks		3 panels	28 members	2.06	2.0	2.0	218	2.20	2.0	2.0	196
D25	Perform statistical analysis											
	Perform statistical analysis		GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	1 tasks		1 panels	12 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1

All Items are referenced in the GTCM Assessment Tool

All Items are referenced in the GTCM Assessment Tool														
MetaDuty / MetaTask / Actual Task					Validation Survey									
					DACUM Panels		Importance: 1 low - 3 high				Learning Difficulty: 1 low - 3 high			
					Name	Size	Mean	Median	Mode	Responses	Mean	Median	Mode	Responses
D26	Apply principles of computational geometry.				SMT	11	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	1 tasks				1 panels	11 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
D27	Use sampling techniques (eg. random, stratified, etc.)				SMT	11	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	1 tasks				1 panels	11 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
E MANAGE SOFTWARE														
E1	Create and maintain data dictionary				GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	Create data dictionary				GRC	5								
	Maintain Data Dictionaries													
	2 tasks				2 panels	17 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
E2	Define database fields				GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	1 tasks				1 panels	12 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
E3	Design Database Structure (e.g. schema)				GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	Define database tables				GHC	12								
	Determine key fields				GRC	5								
	Design Database Structure				GRC	5								
	Create Database Tables													
	4 tasks				2 panels	17 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
E4	Develop (construct) databases (e.g. define geometry & attributes)				SDM	11	2.67	3.0	3.0	45	2.70	3.0	3.0	44
	Develop databases (e.g. define geometry & attributes)(C)				SMT	11								
	Construct a data base													
	2 tasks				2 panels	22 members	2.67	3.0	3.0	45	2.70	3.0	3.0	44
E5	Develop software applications				SDM	11	1.95	2.0	1.0	20	2.67	3.0	3.0	21
	Develop software applications													
	1 tasks				1 panels	11 members	1.95	2.0	1.0	20	2.67	3.0	3.0	21
E6	Test application performance				GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	Test application performance													
	1 tasks				1 panels	12 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
E7	Determine programming tools required to develop applications				GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	Determine programming tools required to develop applications													
	1 tasks				1 panels	12 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1

MetaDACUM: GIS Technician
MetaDuty and MetaTask Source Data

All Items are referenced in the GTCM Assessment Tool

MetaDuty / MetaTask / Actual Task		VALIDATION SURVEY									
		DACUM Panels		Importance: 1 low - 3 high				Learning Difficulty: 1 low - 3 high			
		Name	Size	Mean	Median	Mode	Responses	Mean	Median	Mode	Responses
E8	Develop application to simplify and/or standardize procedures										
	Develop application to simplify and/or standardize procedures	GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	1 tasks	1 panels	12 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
E9	Exercise quality control (Application Dev't)										
	Exercise quality control (Application Dev't)	GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	1 tasks	1 panels	12 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
E10	Automate Manual Processes										
	Automate Manual Processes	GRC	5	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	1 tasks	1 panels	5 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
E11	Automate repetitive tasks										
	Automate repetitive tasks (Adv.)	LLC	12	2.13	2.0	2.0	83	2.28	2.0	2.0	72
	1 tasks	1 panels	12 members	2.13	2.0	2.0	83	2.28	2.0	2.0	72
E12	Create scripts										
	Create scripts (C)	SDM	11	2.31	2.0	3.0	29	2.79	3.0	3.0	28
	1 tasks	1 panels	11 members	2.31	2.0	3.0	29	2.79	3.0	3.0	28
E13	Determine application design format (e.g. platform, language)										
	Determine application design format (e.g. platform, language)	SDM	11	2.04	2.0	2.0	23	2.67	3.0	3.0	21
	1 tasks	1 panels	11 members	2.04	2.0	2.0	23	2.67	3.0	3.0	21
E14	QA/QC software applications (e.g. beta test)										
	QA/QC software applications (e.g. beta test) (C)	SDM	11	2.03	2.0	2.0	32	2.53	3.0	3.0	32
	1 tasks	1 panels	11 members	2.03	2.0	2.0	32	2.53	3.0	3.0	32
E15	Enhance existing custom applications										
	Enhance existing custom applications	SDM	11	1.96	2.0	2.0	24	2.76	3.0	3.0	25
	1 tasks	1 panels	11 members	1.96	2.0	2.0	24	2.76	3.0	3.0	25
E16	Determine hardware /software requirements/ constraints										
	Determine hardware /software requirements/ constraints	GHC	12								
	Define user software needs (C)	SDM	11	2.13	2.0	2.0	30	2.43	2.0	3.0	28
	2 tasks	2 panels	23 members	2.13	2.0	2.0	30	2.43	2.0	3.0	28
E17	Select database software (performance, usability, cost, manageability, uses, output forr										
	Select database software (performance, usability, cost, manageability, uses, output format)	GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	1 tasks	1 panels	12 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1

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MetaDuty / MetaTask / Actual Task		DACUM Panels		VALIDATION SURVEY							
				Importance: 1 low - 3 high				Learning Difficulty: 1 low - 3 high			
		Name	Size	Mean	Median	Mode	Responses	Mean	Median	Mode	Responses
E18	Provide Technology Recommendations										
	Provide Technology Recommendations	GRC	5	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	1 tasks	1 panels	5 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
E19	Recommend new technologies										
	Recommend new technologies	TST	8	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	1 tasks	1 panels	8 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
E20	Optimize database structure										
	Optimize database structure (Adv.)	LLC	12	1.90	2.0	2.0	84	2.03	2.0	2.0	71
	Optimize data files (Adv.)	LLC	12	1.89	2.0	2.0	83	1.84	2.0	2.0	70
	2 tasks	1 panels	12 members	1.90	2.0	2.0	167	1.94	2.0	2.0	141
E21	Optimize data file folders (Adv.)										
	Optimize data file folders (Adv.)	LLC	12	1.89	2.0	2.0	83	1.81	2.0	2.0	70
	1 tasks	1 panels	12 members	1.89	2.0	2.0	83	1.81	2.0	2.0	70
E22	Conduct database performance tuning (e.g. compress, build stats, index) (C)										
	Conduct database performance tuning (e.g. compress, build stats, index) (C)	SDM	11	2.19	2.0	2.0	31	2.45	3.0	3.0	29
	Optimize workstation performance	TST	8								
	2 tasks	2 panels	19 members	2.19	2.0	2.0	31	2.45	3.0	3.0	29
E23	Maintain software										
	Support application	GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	Update and maintain application	GHC	12								
	Maintain Software	GRC	5								
	3 tasks	2 panels	17 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
E24	Install Software (e.g. enhancements, service packs) (C)										
	Install Software (e.g. enhancements, service packs) (C)	SDM	11	2.58	3.0	3.0	38	2.00	2.0	2.0	36
	1 tasks	1 panels	11 members	2.58	3.0	3.0	38	2.00	2.0	2.0	36
E25	Comply with software licensing agreements										
	Comply with software licensing agreements	TST	8	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	1 tasks	1 panels	8 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
E26	Install software upgrades										
	Install software upgrades	TST	8	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
	1 tasks	1 panels	8 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1

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MetaDuty / MetaTask / Actual Task			VALIDATION SURVEY									
			DACUM Panels		Importance: 1 low - 3 high				Learning Difficulty: 1 low - 3 high			
			Name	Size	Mean	Median	Mode	Responses	Mean	Median	Mode	Responses
E27	Maintain workstation security											
	Maintain workstation security	TST	8	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
	1 tasks	1 panels	8 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
E28	Recommend software upgrades											
	Recommend software upgrades	TST	8	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
	1 tasks	1 panels	8 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
F MANAGE PROJECTS												
F1	Make project recommendations											
	Make project recommendations	AGK	5	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
	1 tasks	1 panels	5 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
F2	Produce application recommendation files											
	Produce application recommendation files	AGK	5	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
	1 tasks	1 panels	5 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
F3	Conform to policy and standards											
	Conform to policy and standards	GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
	1 tasks	1 panels	12 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
F4	Coordinate project activities											
	Assist other team members in organizing their work.	SMT	11									
	Organize work tasks.	SMT	11									
	Make decisions to organize work priorities in light of unexpected contingencies.	SMT	11									
	Coordinate multiple projects and ongoing activities	GHC	12									
	Coordinate data collection	AGK	5									
	Coordinate GIS projects (C)	SDM	11	2.61	3.0	3.0	38	2.58	3.0	3.0	36	
	Coordinate multiple activities	TST	8									
	Assure QA/QC	TST	8									
	8 tasks	5 panels	47 members	2.61	3.0	3.0	38	2.58	3.0	3.0	36	
F5	Monitor project progress and verify that project goals are met											
	Monitor project progress	GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
	Verify that project goals were met	GHC	12									
	2 tasks	1 panels	12 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
F6	Coordinate with a Project Team, stakeholders, consultants and IT											
	Coordinate with Project Team	GRC	5	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
	Coordinate Projects with Stakeholders	GRC	5									
	Coordinate work with Consultants	GRC	5									

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MetaDuty and MetaTask Source Data

All Items are referenced in the GTCM Assessment Tool

MetaDuty / MetaTask / Actual Task			VALIDATION SURVEY									
			DACUM Panels		Importance: 1 low - 3 high				Learning Difficulty: 1 low - 3 high			
			Name	Size	Mean	Median	Mode	Responses	Mean	Median	Mode	Responses
F7	Coordinate with Information Technology (IT)	GRC	5									
	4 tasks	1 panels	5 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
	Maintain contracts											
F7	Maintain contracts (E)	SDM	11	2.25	3.0	3.0	24	2.33	2.0	2.0	24	
	1 tasks	1 panels	11 members	2.25	3.0	3.0	24	2.33	2.0	2.0	24	
	Develop Project Plan											
F8	Develop Project Plan	GRC	5	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
	1 tasks	1 panels	5 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
	Define project scope											
F9	Develop project scope	GSC	12	1.69	1.0	1.0	173	2.29	2.0	2.0	157	
	Determine scope of project	GHC	12									
	2 tasks	2 panels	24 members	1.69	1.0	1.0	173	2.29	2.0	2.0	157	
F10	Determine resource requirements											
	Allocate internal / external resource needs (equipment, personnel, data)	GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
	Determine resource needs (equipment, personnel, data)	GHC	12									
	Maintain project resources	TST	8									
	Optimize resources	TST	8									
	4 tasks	2 panels	20 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
F11	Establish project standards											
	Establish project standards (e.g. layout & format consistency)	AGK	5									
	Produce in-house standardized data documentation	GHC	12									
	Develop policy for sharing data	GHC	12									
	Develop GIS procedures (e.g. to update data)	SDM	11	2.49	3.0	3.0	39	2.33	2.0	2.0	36	
	Document what you have done for next person.	SMT	11									
	Assess documentation needs	TST	8									
	Maintain project documentation	TST	8									
	Create documentation	TST	8									
	8 tasks	5 panels	47 members	2.49	3.0	3.0	39	2.33	2.0	2.0	36	
F12	Document Project results											
	Document Project Results	GRC	5	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
	1 tasks	1 panels	5 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
F13	Conform to policies and standards											
	Conform to policies and standards	TST	8	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
	1 tasks	1 panels	8 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	

MetaDACUM: GIS Technician
MetaDuty and MetaTask Source Data

All Items are referenced in the GTCM Assessment Tool

MetaDuty / MetaTask / Actual Task	DACUM Panels		VALIDATION SURVEY							
			Importance: 1 low - 3 high				Learning Difficulty: 1 low - 3 high			
	Name	Size	Mean	Median	Mode	Responses	Mean	Median	Mode	Responses
F14 Develop/document procedures and guidelines										
Document operating procedures	GSC	12	2.30	2.0	2.0	177	1.91	2.0	2.0	161
Complete Company documentation	LLC	12	1.96	2.0	2.0	80	1.68	2.0	2.0	68
Develop procedural guides	TST	8								
3 tasks	3 panels	32 members	2.19	2.0	2.0	257	1.84	2.0	2.0	229
F15 Prepare budget and cost estimates (e.g., time, equipment, data acquisition)										
Assess project costs	GHC	12								
Budget project	GHC	12								
Assess acquisition costs	GHC	12								
Assess maintenance & update cost	GHC	12								
Prepare cost estimates (e.g. time, equipment) (C)	SDM	11	2.14	2.0	2.0	29	2.48	2.0	2.0	29
Obtain data acquisition cost quotes	TST	8								
Meet project budget	TST	8								
7 tasks	3 panels	31 members	2.14	2.0	2.0	29	2.48	2.0	2.0	29
F16 Determine project timeline (schedule, priorities, workload)										
Determine project timeline	AGK	5								
Develop project timetables	GHC	12								
Estimate Task Schedule	GRC	5								
Prioritize Work Load	GRC	5								
Develop project schedule	GSC	12	1.75	2.0	1.0	173	2.24	2.0	2.0	158
Conform to project timetables	TST	8								
6 tasks	5 panels	42 members	1.75	2.0	1.0	173	2.24	2.0	2.0	158
F17 Determine project needs (e.g., client needs)										
Determine project needs	AGK	5	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
Assess client need	GHC	12								
Assess client needs	GHC	12								
Gather User Requirements	GRC	5								
Respond to Public Records Request	GRC	5								
5 tasks	3 panels	22 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
F18 Define project Deliverables										
Assist in defining deliverables (maps, reports,...)	GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
Define deliverables	GHC	12								
2 tasks	1 panels	12 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
F19 Maintain equipment & supplies										
Request equipment & supplies (e.g. hardware, software)	AGK	5								

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			VALIDATION SURVEY							
MetaDuty / MetaTask / Actual Task	DACUM Panels		Importance: 1 low - 3 high				Learning Difficulty: 1 low - 3 high			
	Name	Size	Mean	Median	Mode	Responses	Mean	Median	Mode	Responses
Maintain inventory of supplies	GHC	12								
Maintain Plotters and Printers	GRC	5								
Order Supplies	GRC	5								
Schedule Equipment	GRC	5								
Maintain Hardware	GRC	5								
Maintain GPS & field equipment (digital camera, laser range finder, DMI)	GSC	12	2.48	3.0	3.0	170	1.66	2.0	2.0	152
Maintain plotter / printer	GSC	12	2.26	2.0	2.0	174	1.48	1.0	1.0	155
Maintain scanner	GSC	12	2.13	2.0	2.0	174	1.49	1.0	1.0	152
Maintain Vehicle	GSC	12	1.70	2.0	1.0	168	1.44	1.0	1.0	128
Maintain equipment/ supplies) (E,C)	SDM	11	2.37	2.0	2.0	41	1.78	2.0	2.0	37
Comply with hardware maintenance agreements	TST	8								
Cooperate in using shared equipment	TST	8								
Monitor supplies inventories	TST	8								
Comply with company P&P	TST	8								
15 tasks	6 panels	53 members	2.16	2.0	2.0	727	1.54	1.0	1.0	624
G GENERATE PRODUCTS										
G1 Define/interpret purpose and use of maps										
Define purpose and use of maps	GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
Interpret maps.	SMT	11								
2 tasks	2 panels	23 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
G2 Determine and apply appropriate symbology, fonts and colors										
Determine appropriate fonts and colors	GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
Use appropriate symbology.	SMT	11								
Determine appropriate symbology	TST	8								
3 tasks	3 panels	31 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
G3 Determine appropriate map scale										
Determine appropriate scale	GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
Conceptualize scale.	SMT	11								
2 tasks	2 panels	23 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
G4 Recognize cartographic conventions										
Recognize cartographic conventions	GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
1 tasks	1 panels	12 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
G5 Design Cartographic Elements										
Design Cartographic Elements	GRC	5	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
1 tasks	1 panels	5 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1

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MetaDuty and MetaTask Source Data

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MetaDuty / MetaTask / Actual Task			VALIDATION SURVEY									
			DACUM Panels		Importance: 1 low - 3 high				Learning Difficulty: 1 low - 3 high			
			Name	Size	Mean	Median	Mode	Responses	Mean	Median	Mode	Responses
G6	Create maps using cartographic principles											
	Make project maps	AGK	5									
	Create Maps	GRC	5									
	Plot Map	GRC	5									
	Create maps (E,C)	SDM	11	2.93	3.0	3.0	59	2.33	2.0	2.0	58	
	Apply cartographic conventions	TST	8									
	5 tasks	4 panels	29 members	2.93	3.0	3.0	59	2.33	2.0	2.0	58	
G7	Perform Graphic Design											
	Perform Graphic Design	GRC	5	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
	1 tasks	1 panels	5 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
G8	Create reference maps (e.g. streets)											
	Create reference maps (e.g. streets)	GSC	12	2.66	3.0	3.0	176	1.59	2.0	1.0	162	
	1 tasks	1 panels	12 members	2.66	3.0	3.0	176	1.59	2.0	1.0	162	
G9	Create thematic maps (e.g. zoning)											
	Create thematic maps (e.g. zoning)	GSC	12	2.65	3.0	3.0	175	1.63	2.0	2.0	162	
	1 tasks	1 panels	12 members	2.65	3.0	3.0	175	1.63	2.0	2.0	162	
G10	Create static and interactive maps											
	Create interactive maps (82%) (Adv.)	LLC	12	2.04	2.0	2.0	81	2.36	2.0	3.0	74	
	Create static maps	LLC	12	2.38	2.0	2.0	86	1.59	2.0	2.0	79	
	2 tasks	1 panels	12 members	2.22	2.0	2.0	167	1.96	2.0	2.0	153	
G11	Design map layouts											
	Design layout	GHC	12									
	Design Maps	GRC	5									
	Design map layouts	LLC	12	2.34	2.0	3.0	89	1.73	2.0	2.0	79	
	Design layout	TST	8									
	4 tasks	4 panels	37 members	2.34	2.0	3.0	89	1.73	2.0	2.0	79	
G12	Create map templates											
	Create map series templates	LLC	12	1.99	2.0	2.0	84	1.97	2.0	2.0	76	
	Create map templates (C)	SDM	11	2.38	2.0	3.0	47	2.29	2.0	2.0	48	
	2 tasks	2 panels	23 members	2.13	2.0	2.0	131	2.09	2.0	2.0	124	
G13	Create graphic items (e.g. logos, headers, posters, exhibits) (E,C)											
	Create graphic items (e.g. logos, headers, posters, exhibits) (E,C)	SDM	11	2.31	2.0	2.0	49	2.11	2.0	2.0	47	
	1 tasks	1 panels	11 members	2.31	2.0	2.0	49	2.11	2.0	2.0	47	

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MetaDuty and MetaTask Source Data

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MetaDuty / MetaTask / Actual Task			VALIDATION SURVEY									
			DACUM Panels		Importance: 1 low - 3 high				Learning Difficulty: 1 low - 3 high			
			Name	Size	Mean	Median	Mode	Responses	Mean	Median	Mode	Responses
G14	Calculate scale transformations.											
	Calculate scale transformations.	SMT	11	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
	1 tasks	1 panels	11 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
G15	Resolve spatial conflicts.											
	Resolve spatial conflicts.	SMT	11	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
	1 tasks	1 panels	11 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
G16	Acknowledge contributors and copyrights											
	Acknowledge contributors	GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
	Acknowledge contributors and copyrights	TST	8									
	2 tasks	2 panels	20 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
G17	Adhere to purpose and use of maps											
	Adhere to purpose and use of maps	TST	8	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
	1 tasks	1 panels	8 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
G18	Determine appropriate scale and projection											
	Determine appropriate scale and projection	TST	8	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
	1 tasks	1 panels	8 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
G19	Select proper media/output device											
	Select proper media/output device	GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
	Select proper media/output device	TST	8									
	2 tasks	2 panels	20 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
G20	Create reports on analysis, project status, outcomes, etc.											
	Generate field reports e.g. budget, input quantities	AGK	5									
	Report Results	GHC	12									
	Create Database Reports	GRC	5									
	Create data analysis reports (e.g. tables, charts)	GSC	12	2.36	2.0	3.0	176	1.85	2.0	2.0	162	
	Create project status report	GSC	12	2.18	2.0	2.0	176	1.76	2.0	2.0	160	
	Create reports (91%)	LLC	12	1.98	2.0	2.0	88	1.76	2.0	2.0	74	
	Create analysis reports (E,C)	SDM	11	2.48	3.0	3.0	44	2.53	3.0	3.0	43	
	Write informational reports (e.g. progress, technical, procedural, recommendations) (C)	SDM	11	2.41	2.0	3.0	41	2.37	2.0	2.0	43	
	Report results	TST	8									
	9 tasks	7 panels	65 members	2.25	2.0	2.0	525	1.91	2.0	2.0	482	
G21	Create Database Tables											
	Create Database Tables	GRC	5	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
	1 tasks	1 panels	5 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	

MetaDACUM: GIS Technician
MetaDuty and MetaTask Source Data

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MetaDuty / MetaTask / Actual Task	DACUM Panels		VALIDATION SURVEY							
			Importance: 1 low - 3 high				Learning Difficulty: 1 low - 3 high			
	Name	Size	Mean	Median	Mode	Responses	Mean	Median	Mode	Responses
G22 Create charts, graphs, tables										
Create charts (82%)	LLC	12	1.90	2.0	2.0	86	1.73	2.0	2.0	74
Create charts (E,C)	SDM	11	2.31	2.0	2.0	39	2.16	2.0	2.0	38
Create tables (E,C)	SDM	11	2.58	3.0	3.0	48	2.16	2.0	2.0	45
3 tasks	2 panels	23 members	2.18	2.0	2.0	173	1.96	2.0	2.0	157
G23 Create and present geospatial projects										
Create project presentation(s)	AGK	5								
Present completed products	AGK	5								
Create Presentation Materials	GRC	5								
Give Informational Presentations	GRC	5								
Create Presentation Materials	GRC	5								
Develop presentations	GSC	12	2.02	2.0	2.0	174	2.01	2.0	2.0	159
6 tasks	3 panels	22 members	2.02	2.0	2.0	174	2.01	2.0	2.0	159
G24 Create animations (e.g. 3D, 4D)										
Create animation (e.g. 3D, 4D)	GSC	12	1.46	1.0	1.0	174	2.40	2.0	3.0	139
1 tasks	1 panels	12 members	1.46	1.0	1.0	174	2.40	2.0	3.0	139
G25 Present project summary										
Present project summary	LLC	12	1.92	2.0	2.0	86	1.89	2.0	2.0	72
1 tasks	1 panels	12 members	1.92	2.0	2.0	86	1.89	2.0	2.0	72
G26 Provide information presentations										
Provide information presentations for users	GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
Provide information presentations	TST	8								
2 tasks	2 panels	20 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
G27 Disseminate documentation where appropriate										
Disseminate documentation where appropriate	GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
1 tasks	1 panels	12 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
G28 Disseminate information through a web site										
Disseminate information through a web site	GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
1 tasks	1 panels	12 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
G29 Manage Web Content										
Manage Web Content	GRC	5	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
1 tasks	1 panels	5 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1

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MetaDuty and MetaTask Source Data

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MetaDuty / MetaTask / Actual Task		VALIDATION SURVEY									
		DACUM Panels		Importance: 1 low - 3 high				Learning Difficulty: 1 low - 3 high			
		Name	Size	Mean	Median	Mode	Responses	Mean	Median	Mode	Responses
G30 Publish Map Products											
Publish Map Products		GRC	5	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
Produce deliverables		TST	8								
2 tasks		2 panels	13 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
G31 Load/Burn Data onto Media											
Load/Burn Data onto Media		GRC	5	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
1 tasks		1 panels	5 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
G32 Publish spatial information on-line											
Publish digital spatial information (CD, DVD)		LLC	12	1.98	2.0	2.0	84	1.49	1.0	1.0	73
Publish spatial information on-line		LLC	12	1.81	2.0	2.0	85	2.07	2.0	2.0	70
Disseminate information via Internet		TST	8								
Disseminate documentation		TST	8								
4 tasks		2 panels	20 members	1.89	2.0	2.0	169	1.77	1.0	1.0	143
G33 Distribute data according to organizational policy (E,C)											
Deliver Maps and Data		GRC	5								
Distribute data according to organizational policy (E,C)		SDM	11	2.30	2.0	3.0	37	1.92	2.0	2.0	36
Distribute digital products (E,C)		SDM	11	2.51	3.0	3.0	47	2.00	2.0	2.0	46
Distribute hard copy products (E,C)		SDM	11	2.60	3.0	3.0	53	1.94	2.0	2.0	52
4 tasks		2 panels	16 members	2.49	3.0	3.0	137	1.96	2.0	2.0	134
G34 Create mailing lists/labels											
Create Mail Lists		GRC	5								
Generate mailing labels (E,C)		SDM	11	2.05	2.0	2.0	37	1.80	2.0	2.0	35
2 tasks		2 panels	16 members	2.05	2.0	2.0	37	1.80	2.0	2.0	35
H PROFESSIONAL DEVELOPMENT											
H1 Communicate with peers, clients, co-workers											
Communicate with peers		GHC	12								
Communicate with clients		LLC	12	2.33	2.0	3.0	86	1.61	2.0	1.0	77
Communicate with co-workers		LLC	12	2.66	3.0	3.0	88	1.34	1.0	1.0	77
Interact with co-workers		LLC	12	2.71	3.0	3.0	87	1.39	1.0	1.0	77
Correspond with others (e.g. email, mail, phone) (C)		SDM	11	2.80	3.0	3.0	60	1.85	2.0	2.0	59
Communicate with peers		TST	8								
6 tasks		4 panels	43 members	2.61	3.0	3.0	321	1.53	1.0	1.0	290
H2 Communicate quality control problems to other team members.											
Communicate quality control problems to other team members.		SMT	11	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
1 tasks		1 panels	11 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1

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MetaDuty / MetaTask / Actual Task				VALIDATION SURVEY									
				DACUM Panels		Importance: 1 low - 3 high				Learning Difficulty: 1 low - 3 high			
				Name	Size	Mean	Median	Mode	Responses	Mean	Median	Mode	Responses
H3	Present ideas clearly and concisely.												
	Present ideas clearly and concisely.	SMT	11	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1		
	1 tasks	1 panels	11 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1		
H4	Inform data users and custodians of update completion												
	Let users & data custodians know that updates are completed	GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1		
	Inform data users and custodians of update completion	TST	8										
	2 tasks	2 panels	20 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1		
H5	Visit trade shows												
	Visit trade shows	AGK	5	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1		
	1 tasks	1 panels	5 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1		
H6	Network with industry professionals												
	Network with other job related professionals	LLC	12	2.26	2.0	2.0	87	1.54	1.0	1.0	78		
	Network with industry professionals	AGK	5										
	2 tasks	2 panels	17 members	2.26	2.0	2.0	87	1.54	1.0	1.0	78		
H7	Participate in professional organizations, workshops and conferences												
	Participate in professional conferences (oral, posters, publish/ submit articles) (E,C)	SDM	11	2.07	2.0	2.0	41	2.21	2.0	2.0	38		
	Participate in GIS user groups (E,C)	SDM	11	2.24	2.0	2.0	46	1.70	2.0	2.0	46		
	Participate in professional organizations	TST	8										
	Participate in User Groups	GRC	5										
	Participate in workshops & conferences	GSC	12	2.35	2.0	2.0	176	1.39	1.0	1.0	160		
	Attend User Conferences	LLC	12	2.07	2.0	2.0	87	1.41	1.0	1.0	76		
	Participate in job related workshops	LLC	12	2.25	2.0	2.0	87	1.38	1.0	1.0	79		
	Present at User Conferences (55%) (Adv.)	LLC	12	1.56	1.0	1.0	81	2.16	2.0	2.0	73		
	Participate in job related professional organizations	LLC	12	2.30	2.0	2.0	86	1.35	1.0	1.0	78		
	9 tasks	5 panels	48 members	2.15	2.0	2.0	604	1.57	1.0	1.0	550		
H8	Conduct Training												
	Train co-workers	AGK	5										
	Assess level of user's knowledge and needs and train accordingly	GHC	12										
	Establish and maintain remote training sites	GHC	12										
	Provide post training support	GHC	12										
	Organize Staff/Department Training	GRC	5										
	Train Other Staff	GRC	5										
	Cross-training (e.g. mentoring, coaching)	GSC	12	2.14	2.0	2.0	174	1.88	2.0	2.0	156		
	Provide training	GSC	12	1.78	2.0	2.0	176	2.26	2.0	2.0	158		
	Cross-train within organization (C)	SDM	11	2.38	3.0	3.0	45	2.26	2.0	2.0	43		

MetaDACUM: GIS Technician
MetaDuty and MetaTask Source Data

All Items are referenced in the GTCM Assessment Tool

MetaDuty / MetaTask / Actual Task			VALIDATION SURVEY									
			DACUM Panels		Importance: 1 low - 3 high				Learning Difficulty: 1 low - 3 high			
			Name	Size	Mean	Median	Mode	Responses	Mean	Median	Mode	Responses
	Train GIS end-user(s) (C)	SDM	11	2.49	3.0	3.0	39	2.51	3.0	3.0	39	
	Participate in peer training	TST	8									
	11 tasks	6 panels	53 members	2.05	2.0	2.0	434	2.13	2.0	2.0	396	
H9	Develop user guides											
	Develop training applications and course materials	GHC	12	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
	Develop users guides	GHC	12									
	2 tasks	1 panels	12 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
H10	Build help files											
	Build help files	SDM	11	1.88	2.0	1.0	25	2.38	2.0	2.0	24	
	1 tasks	1 panels	11 members	1.88	2.0	1.0	25	2.38	2.0	2.0	24	
H11	Write Technical Guides											
	Write Technical Guides (C)	SDM	11	2.00	2.0	2.0	33	2.55	3.0	3.0	31	
	1 tasks	1 panels	11 members	2.00	2.0	2.0	33	2.55	3.0	3.0	31	
H12	Create "read me" files											
	Create "read me" files	TST	8	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
	1 tasks	1 panels	8 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1	
H13	Attend training											
	Seek additional training	AGK	5									
	Evaluate personal performance	AGK	5									
	Attend training	GSC	12	2.52	3.0	3.0	177	1.38	1.0	1.0	161	
	Conduct self-assessment	GSC	12	2.13	2.0	2.0	176	1.76	2.0	2.0	153	
	Complete job related classes (online / classroom)	LLC	12	2.21	2.0	2.0	85	1.51	1.0	1.0	76	
	Take advanced training courses (e.g. technical training & education courses) (C)	SDM	11	2.59	3.0	3.0	46	2.11	2.0	2.0	47	
	Maintain technical proficiency	TST	8									
	7 tasks	5 panels	48 members	2.33	2.0	2.0	484	1.61	1.0	1.0	437	
H14	Obtain professional certification (e.g. GISP, ASPRS)											
	Obtain professional certification (e.g. GISP, ASPRS)	GSC	12	2.11	2.0	2.0	175	2.35	2.0	2.0	154	
	Acquire GIS Certification (45%)	LLC	12	1.86	2.0	2.0	81	2.34	2.0	3.0	71	
	2 tasks	2 panels	24 members	2.03	2.0	2.0	256	2.35	2.0	2.0	225	
H15	Promote / represent GIS											
	Promote GIS uses	GHC	12									
	Educate and Promote GIS Capabilities	GRC	5									
	Perform Community outreach	LLC	12	1.60	2.0	1.0	83	1.82	2.0	2.0	73	
	Participate in public relations activities (E,C)	SDM	11	1.97	2.0	2.0	31	1.94	2.0	2.0	31	

MetaDACUM: GIS Technician
MetaDuty and MetaTask Source Data

All Items are referenced in the GTCM Assessment Tool

MetaDuty / MetaTask / Actual Task	DACUM Panels		VALIDATION SURVEY							
			Importance: 1 low - 3 high				Learning Difficulty: 1 low - 3 high			
	Name	Size	Mean	Median	Mode	Responses	Mean	Median	Mode	Responses
Represent GIS at meetings (committees, user groups, organizational conferences) (E,C)	SDM	11	2.30	2.0	2.0	37	2.05	2.0	2.0	41
5 tasks	4 panels	40 members	1.85	2.0	1.0	151	1.91	2.0	2.0	145
H16 Provide technical support										
Provide Technical Support	GRC	5								
Provide technical support for users (Adv.)	LLC	12	2.28	2.0	2.0	86	2.01	2.0	2.0	76
Resolve user technical problems (C)	SDM	11	2.49	3.0	3.0	43	2.69	3.0	3.0	42
3 tasks	3 panels	28 members	2.35	2.0	2.0	129	2.25	2.0	2.0	118
H17 Troubleshoot hardware/software problems										
Troubleshoot hardware/software problems	TST	8	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
1 tasks	1 panels	8 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
H18 Review industry publications										
Review industry publications	AGK	5	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
1 tasks	1 panels	5 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
H19 Research GIS Technology Trends										
Research GIS Technology Trends	GRC	5	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
1 tasks	1 panels	5 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
H20 Explore new geoprocessing techniques										
Explore new process techniques	AGK	5	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
1 tasks	1 panels	5 members	0.00	0.0	0.0	-1	0.00	0.0	0.0	-1
H21 View job related information (e.g. blogs, news feeds, print publications, forums)										
Research current/emerging trends (e.g. publications, on-line)	GSC	12	2.13	2.0	2.0	175	1.58	2.0	1.0	160
View job related information (e.g. blogs, news feeds, print publications, forums)	LLC	12	2.00	2.0	2.0	87	1.19	1.0	1.0	78
Read trade publications	TST	8								
3 tasks	3 panels	32 members	2.09	2.0	2.0	262	1.45	2.0	1.0	238
H22 Supervise interns										
Participate in Hiring and Supervisory Activities	GRC	5								
Supervise interns (82%) (Adv.)	LLC	12	1.69	2.0	1.0	84	2.07	2.0	2.0	69
Supervise Interns (C)	SDM	11	2.11	2.0	2.0	28	2.36	2.0	2.0	28
3 tasks	3 panels	28 members	1.79	2.0	1.0	112	2.15	2.0	2.0	97

Source: JJohnson, 9/2011, National Geotech Center